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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to overcome Examiners rejection and to add limitations from dependent claims into the base claims. No new matter has been added.

Claim Rejections under 35 USC 112

Claims 1-5, 7-13, 15-19 and 21-23 stand rejected under 35 USC 112, second paragraph as being indefinite.

Claims, 1, 15, and claims 21-23 have been amended to overcome Examiners rejection.

Claim Rejections under 35 USC 103

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1. Claims 1-2 and 7 stand rejected under 35 USC 103(a) as being unpatentable over Tullier et al. (US 4,051,042) in view of Billeter (US 3,748,837).

Tullier disclose a T- (or Y)-connection that has a conduit (8) and a filter assembly in the vertical part of the T connection (col 1, lines 29-37) where a plate (12) sealably secured (e.g., by welds) within the conduit at an angle (engaging the conduit) (col 1, lines 39-44; item 12 Figure 1) where the plate (12) has an opening (13) for communicating fluid flow to the filter assembly.

In one embodiment (T-connection strainer), the filter member (item 15, Figure 1) is abutted against the plate (col 2, lines 10-12). In another embodiment (Figures 3, 4) **(Y-connection strainer) the support plate (12) is sealed (welded) vertically within the conduit** (item 12 Figure 3, 4; col 2, lines 45-50) and the filter assembly includes a **second conduit (35) (welded to the support plate (12) where the filter (15) is removeably threaded onto the second conduit (35) (col 2, lines 50-55). The filter member is replaceable by removing a flange (item 28, Figures 1, 3, and 4) located at the bottom end of the filter housing where the flange is held in place by nuts and bolts (col 2, lines 8-**

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18). A valve is mounted in the flange for blowdown of the filter member (col 2, lines 18-20).

Tullier therefore does not disclose several aspects of Applicants disclosed and claimed invention including:

"a substantially **conical filter housing extending from said conduit** in obtuse angular relationship to a longitudinal axis of said conduit and a direction of fluid flow";

Tullier also does not disclose:

"a drain valve provided on said filter housing lower end, said lower end comprising a smaller diameter end of said conical filter housing, **said drain valve openable for flushing said filter without interrupting said fluid flow through said conduit.**"

On the other hand, Billeter discloses a **plug type (ball) valve member for closing an air brake pipe connection on a railroad car** (cut-out cock and dirt collector) (col 1, lines 5-18). The ball valve member (13) is provided in a body (5) between an air passage inlet (7) and an air passage outlet (8)

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(col 1, lines 39-49) and the ball valve **forms an airtight seal within a body member** (5; Figure 1) by means of an O-ring (16) against a bonnet (15) and an O-ring (19) against a bearing (18) (col 1, lines 50-67). A filtering element (25) is provided on one side of the ball valve and is supported by a **cover (29) which threads onto the body** (5) (col 2, lines 4-16). **The inward end of the filter seals against the ball valve by O-ring** (26) (col 2, lines 17-25).

The ball valve is opened and closed by an operating handle (17) to open or close air communication between the inlet 7 and outlet 8 (col 2, lines 26-line 47).

Even assuming *arguendo*, that the **air sealing ball valve** of Billeter including an air filtering member is *analogous art* to the **T-connection (or Y connection) strainer** of Tullier et al. for filtering fluid flow, such combination would destroy the principle of operation of either reference and furthermore, or make either reference unsuitable for its intended purpose, and nevertheless, does not produce Applicants disclosed and claimed invention.

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Examiner asserts that the air filter cap of Billeter is conical and that it would be obvious to modify the T-connection of Tullier et al. since Billeter teaches the benefits of centering and supporting the Filter.

Billeter nowhere discusses or shows a "conical" filter housing or any where discusses the benefits of the shape of the **filter cover** or the benefits of a shape in centering and support the filter. Rather Billeter merely teaches that "**when it is necessary to clean out the filter or replace it, the cap nut 32 (on the end of the filter cover) easily unscrews the cover 29 from the body to remove the filter**" (col 2, lines 31-34). Billeter also teaches that a filter may not be included at all (col 2, lines 48-51). The filter cover appears to be shown with a slight taper (but could be a square taper), but Billeter nowhere suggests or shows a **conical shaped filter housing**.

Even assuming Billeter is analogous art to Applicants disclosed and claimed invention, the apparatus of Billeter operates in "removing or cleaning the filter" **by interrupting the air flow and operation of the ball valve** in the air brake line of Billeter, and presents the very problem that Applicants invention overcomes.

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Examiner also argues that that motivation to modify Tullier et al. is contained in Tullier et al. includes a standard disclaimer at the end of the disclosure i.e., "The foregoing disclosure and description of the invention are illustrative and explanatory thereof, and various changes in the size shape, and materials as well as the details of the illustrated construction may be made without departing from the spirit of the invention".

Applicants respectfully suggest that that such a general statement (broad disclaimer of limitation) does not provide motivation to combine teachings as envisioned by the statutes, the case law or the Patent Office guidelines for examination (MPEP).

Applicants also respectfully note that Examiner further fails to note that the nut (32) of Billeter **is an integral part of the filter cover** allowing ready removal of the filter housing (to replace or clean) by means of the nut to replace the filter.

Thus, even assuming *arguendo* a proper motivation to combine the teachings, modifying the filter housing portion of Tullier et al. with the filter cover of Billeter (including the nut) would

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make the flange nut and bolt arrangement **and blowout valve** of Tullier inoperable, and would not produce Applicants disclosed and claimed invention.

Nevertheless, the combined references nowhere disclose or suggest a structure including the claimed operation of Applicants disclosed and claimed invention or recognize or provide a solution to the problem that Applicants have recognized and solved by their claimed invention including:

"a drain valve provided on said filter housing lower end, said lower end comprising a smaller diameter end of said conical filter housing, **said drain valve openable for flushing said filter without interrupting said fluid flow.**"

Rather the "blowback" valve of Tullier et al. by its very term teaches interrupting of the fluid flow through the conduit.

Thus, even assuming *arguendo*, that analogous art exists, and a proper motivation for combination exists, and that Billeter discloses a "conical" filter housing, all of which Applicants do not concede, such combination does not produce Applicants disclosed and claimed invention.

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2. Claim 5 stands rejected under 35 USC 103(a) as being unpatentable over Tullier et al. in view of Billeter, above and further in view of Farrel et al.

Farrel et al. disclose an **in-line filter assembly** where a removable screening basket (14) in a filter body for placing in-line in a conduit (screening basket mounted in filter body (11) on a horizontal axis with its open mouth facing the inlet passage) with fluid flow through a conduit (e.g., see flow direction in Figure 1) (col 2, lines 13-21; col 4, lines 20-23). Farrel et al. disclose an opening (16) in the filter body (11) for inserting and removing the filter basket and which is closed by a solid cover with stud assemblies (col 2, lines 23-27). Farrel et al. also disclose a **threaded drain plug** (44; Figure 3) in the lower portion of the in-line filter body **which may be used to drain the line as well as the strainer** (i.e., interrupts fluid flow through the conduit (line)).

Thus, Farrel et al. disclose an in-line fluid strainer that works by a **different principle of operation** that the Y or T-shaped strainer of Tullier et al., where fluid flow is passed



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through the filter housing extension in Tullier et al. and is passed in-line through the filter body of Farrel et al.

For example, any attempt to modify the T or Y connection strainer of Tullier et al. with the in-line strainer of Farrel et al., i.e., by providing a cap in the conduit of Tullier et al., would change the fundamental design Tullier et al., i.e., the filter **could not be removed through welded support plates (12)** of Tullier et al., (T-shaped strainer) or first unthreaded and then removed through the cap (Y-shaped strainer) and further would make the flange portion of Tullier superfluous. On the other hand, removing the welded support plates (in either T or Y-shaped strainers) of Tullier et al., would make the apparatus of Tullier et al. unsuitable for its intended operation.

Nevertheless, even assuming arguendo a proper motivation for combining the teachings of Farrel et al. with either Billeter (non-analogous art) or Tullier et al. (strainer that works by a different principle of operation than Farrel et al.), such combination does not produce Applicants disclosed and claimed invention or recognize or suggest a solution to the problem that Applicants have recognized and solved including:

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"a drain valve provided on a lower end of said filter housing, said lower end comprising a smaller diameter end of said conical filter housing, said drain valve openable **for flushing said filter without interrupting said fluid flow through said conduit.**"

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Finally, when evaluating the scope of a claim, every limitation in the claim must be considered. Office personnel may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation. Instead, the claim as a whole must be considered. See, e.g., *Diamond v. Diehr*, 450 U.S. at 188-189, 209 USPQ at 9.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art

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invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

3. Claim 1-5, 7-12, 15-18, and 21-23 stand rejected under 35 USC 103(a) as being unpatentable over Applicants alleged admitted prior art in view of Cheng (US 4,048,067).

Applicants discuss and disclose the shortcomings of the prior "art including

The conventional Y-strainer 20 having the conventional filter 22 suffers from several disadvantages. The filter 22 is typically fixedly mounted inside the strainer housing 30, and this renders difficult the cleaning process for complete removal of the particles 31 from the filter 22. Consequently, particles 31 remaining in the filter 22 tend to reduce the particle-removing efficiency of the filter 22. This contributes to an increase in the number of contaminating particles 31 in the water re-distributed back to the spray nozzles 10 in the wet scrubber 2, as well as reduces the efficiency of the heat exchanger 50 in the water cooling system 34. Furthermore, the wet

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scrubber 2, water cooling system 34 or other system of which the Y-strainer 20 is a part must be shut down for cleaning of the filter 22. Because the filter 22 must typically be cleaned often, the shutdown rate for the wet scrubber 2 or the water cooling system 34 is high, and this interrupts semiconductor production and significantly increases production costs."

The fact that Cheng et al. in **non-analogous art**, disclose a completely different structure than Applicants (i.e., a stand alone cone shaped heavy hydrocarbon solids separator with recirculation, and unable to accomplish any of Applicants functions according to prior art structures), does not further help Examiner in establishing a *prima facie* case of obviousness.

For example, Applicants respectfully suggest that Examiner may not read the elements of Applicants claims in isolation from each other or claimed function and at the same time, ignore associated functions and operation in Applicants discussion of the prior art.

"Finally, when evaluating the scope of a claim, every limitation in the claim must be considered. Office personnel may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation. Instead, the claim as a whole must be considered." See, e.g., *Diamond v. Diehr*, 450 U.S. at 188-189, 209 USPQ at 9.

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For example there is no conceivable or suggested modification of Applicants disclosed prior art strainers in the prior art with the heavy hydrocarbon oil solids removal apparatus of Cheng et al. to achieve a workable strainer, and Examiner has not explained how the modification might take place, or where the suggestion to make such modification is found.

The fact that Cheng et al. disclose a conical shaped separation chamber where the walls are pervious to liquid and impervious to solids, **and where the filter (porous wall on metal support) is nowhere disclosed as removable**, liquid is introduced tangentially by a pipe on the wall (col 1, lines 24-62), and where the separated liquid is recirculated through the conical shaped separation chamber, even assuming *arguendo*, analogous art and a proper motivation to combine, (other than Applicants disclosure), such combination **does not** produce Applicants disclosed and claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior

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art, and not based on applicant's disclosure." *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Moreover, Examiner has not explained the motivation for, or how or where the lid (17) in the top of the conical recirculating solids separator of Cheng et al., could be placed in the conduit of Applicants prior art to remove Applicants filter, especially **where Cheng et al., do not disclose a removable filter and Applicants discuss in the prior art a fixedly mounted filter.**

4. Claims 13 and 19 stand rejected under 35 USC 103(a) as being unpatentable over Applicants alleged admitted prior art in view of Cheng, as applied above, and further in view of Drori (US 4,207,181).

Applicants reiterate the comments made above with respect to Applicants alleged admitted prior art and Cheng.

The fact that Drori disclose a dirt sensing filter (340) including a pressure displaceable diaphragm (360) and a valve 328 that is opened (to discharge accumulated dirt) or closed by the differential pressure created on the diaphragm depending on if the filter is dirty or clean (col 9, lines 21-33); col 10, lines

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30-45); col 12, lines 10-34) does not further help Examiner is establishing a *prima facie* case of obviousness.

Nowhere do any of the cited references disclose or suggest a wet scrubber or a cooling system including:

"further comprising a first pressure monitor provided in said fluid drain line for measuring a first fluid pressure, a second pressure monitor provided in said fluid return line for measuring a second fluid pressure and a controller connected to said first pressure monitor, said second pressure monitor and said drain valve for operating said drain valve when said first fluid pressure measured by said first pressure monitor exceeds said second fluid pressure measured by said second pressure monitor by a predetermined value."

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

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**Conclusion**

The prior art, either singly or in combination, fails to produce Applicants disclosed and claimed invention and therefore fails to make out a *prima facie* case of obviousness with respect to Applicants independent and dependent claims.

The Claims have been amended to clarify Applicants' disclosed and claimed invention. A favorable reconsideration of Applicants' claims is respectfully requested.

Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a



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condition for allowance.

Respectfully submitted,  
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